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ABSTRACT

Cooperative learning is being recommended as a solution for numerous education problems, from enhancing disadvantaged children's self-esteem to ensuring academic success for all students. Cooperative learning has great potential as a supplement or alternative to traditional teaching methods when students are adequately socialized and motivated. The teacher's role is crucial, since conventional workbook exercises are usually inadequate and students must be led to assume responsibility for their own learning and deportment. This "Roundup" summarizes cooperative learning research studies by four major contributors. Robert Slavin's comprehensive review article, stressing group goals and individual accountability, links the use of Student Team Learning and Group Investigation models to student gains in achievement, intergroup relations, and self-esteem. David Johnson and Roger Johnson's meta-analysis shows the superiority of cooperative learning strategies in promoting student achievement and identifies factors influencing group success or failure. Elizabeth Cohen's article argues that cooperative learning's survival depends on developing new curriculum materials, addressing student status problems, and creating collegial and administrative support systems for teachers. Daniel Solomon's study of cooperative learning in a longitudinal Child Development Project shows that K-4 students in three program schools exhibited more socially responsive behavior and concern for democratic values that their peers in control schools. (MLH)

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Research ROUNDUP

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Cooperative Learning in Elementary Schools

Margaret Hadderman

Cooperative learning, simply defined as school work done in groups, began as a grassroots movement involving a handful of professors and researchers. Today, cooperative learning has become widespread and is being recommended as a solution for a variety of education problems, from enhancing the self-esteem of at-risk children to ensuring academic success for all students. It has also been prescribed as a means of improving racial relations and mitigating adverse effects of tracking and remediation.

Although some of these expectations might seem farfetched, cooperative learning has demonstrated great potential as a supplement to whole-class instruction and as an alternative to traditional teaching methods. The problem lies in translating a relatively simple concept into a purposeful activity that facilitates students' learning while engaging their wholehearted participation.

In classrooms, as elsewhere, old habits die hard. Students trained from an early age to compete for teacher attention and grades are suddenly challenged to consider their classmates as resources rather than competitors. While researchers dispute the value of competition and rewards in group work, they agree that students must be sufficiently motivated if they are to help each other progress toward common learning objectives. To be successful in a cooperative setting, children must also acquire necessary social skills and develop feelings of responsibility for achieving group and individual goals.

The teacher's choice of materials is critical in a cooperative learning classroom, since conventional workbook exercises are usually too dull or too easily completed to elicit spirited debate among group learners. Teachers must also learn new strategies in order to help students gradually assume responsibility for their own learning and behavior.

With this basic information about cooperative learning in mind, what does the research literature have to offer the interested practitioner?

Robert E. Slavin, director of the Elementary School Program at Johns Hopkins University, believes strongly in the importance of group goals and individual accountability. His comprehensive review article links the use of Student Team Learning and Group Investigation models to student gains in achievement, intergroup relations, and self-esteem.

David Johnson and Roger Johnson, co-directors of the Cooperative Learning Center at the University of Minnesota, have extensively researched the effects of competitive, individualistic, and cooperative learning strategies on productivity and achievement. In a recent paper, the Johnsons show the superiority of cooperative learning strategies in promoting student achievement, and identify factors influencing group success or failure.

Sociologist *Elizabeth Cohen* views cooperative learning's increasing popularity with mixed feelings. She believes that its survival depends on the development of new curriculum materials, successful treatment of student status problems, and the availability of collegial and administrative support systems for teachers.

Daniel Solomon and his associates evaluated cooperative learning as a major strand of their Child Development Project, an extensive longitudinal experiment in fostering young children's social development. They found that K-4 students in three program schools consistently exhibited more socially responsive behavior and concern for democratic values than their peers in control schools.

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Slavin, Robert E. **"Synthesis of Research on Cooperative Learning."** *Educational Leadership* 48:5 (February 1991): 71-82.

What are the most widely used cooperative learning strategies and how do they affect student outcomes? Slavin's comprehensive review article effectively answers both these questions, while highlighting the author's own research. Among the evaluated cooperative learning models are Student Team Learning (STL), Jigsaw, Learning Together, and Group Investigation.

STL, developed by Slavin, stresses team goals and team success. Students master learning objectives while working together in four-member teams. Team rewards, individual accountability (through quizzes or weekly tournaments), and equal opportunities for success are central to four STL variations. Three of these variations—Student Teams-Achievement Divisions, Teams-Games-Tournament, and the more comprehensive Team-Assisted Individualization—involve mathematics instruction. The fourth variation, Cooperative Integrated Reading and Composition, is used for language arts instruction in the upper elementary grades.

In Elliot Aronson's Jigsaw I method, students assigned to six-member teams work on academic material broken into segments. Team representatives meet in "expert" groups to discuss their segments and then take turns teaching this material to their own teammates. In Slavin's Jigsaw II variation, students read a common narrative and become "experts" on different topics within it.

The Learning Together model, developed by David and Roger Johnson, involves four- or five-member mixed-ability student teams working to complete a group product worthy of praise and rewards. This method stresses team-building and regular group processing discussions.

Group Investigation, a consistently successful model developed by Shlomo and Yael Sharan, is a general classroom management plan based on cooperative inquiry, discussion, planning, and projects. Students form two- to six-member groups, choose topics from a study unit, assume individual tasks, and present results to the entire class.

Cooperative learning methods are among the most extensively evaluated instructional alternatives. According to Slavin, 41 of 67 high-quality studies measuring student achievement outcomes in elementary and secondary schools found that cooperatively taught youngsters consistently outperformed their conventionally taught peers. When methods stressing group goals and accountability were evaluated in comparison studies, 37 of 44 comparisons with conventionally taught control groups found significantly positive achievement results for cooperatively taught students.

Cooperative learning methods seem to be equally effective with all types of students, regardless of ability level, according to Slavin, and they can enhance achievement at "all grade levels, in all major subject areas, and in urban, rural, and suburban schools." Group learning also tends to promote friendships across ethnic lines and greater acceptance of handicapped classmates.

Group learning techniques can also influence other important educational student outcomes, including a liking for school, a desire for academic success, a sense of individual control, and a predilection for cooperative and altruistic behavior.

Johnson, David W., and Johnson, Roger T. **"Cooperative Learning and Achievement."** In *Cooperative Learning: Theory and Research*, edited by Shlomo Sharan. New York: Praeger, 1990: 23-27.

For the past 15 years, the Johnson brothers have conducted classroom-based research studies on the relative effectiveness of competitive, individualistic, and cooperative learning methods. Their work is part of a 90-year social psychology research tradition that has consistently found cooperative learning methods clearly superior to traditional instructional methods.

Acknowledging the methodological shortcomings of many earlier studies, the Johnsons performed a meta-analysis of studies involving randomly assigned students, well defined control conditions, and verified implementation success. The analysis found that "students at the 50th percentile of the cooperative learning situation performed at the 81st percentile of the competitive and individualistic learning situations."

When cooperative strategies containing competitive and individualistic components were compared with "purer" cooperative learning applications, the latter consistently produced higher achievement. Research has also shown that cooperative learning results in greater use of higher-level reasoning, more frequent generation of new ideas and solutions (process gain), and greater success on individually taken quizzes.

To discover *why* cooperation produces higher achieve-

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ment, the Johnsons attempted to isolate factors affecting group instruction. They found that merely grouping students and asking them to cooperate will not be successful. Such efforts can miscarry through what the Johnsons have labeled the "free rider," "sucker," and "rich-get-richer" effects. Groups can also founder through self-induced helplessness, diffusion of responsibility, social loafing, dysfunctional labor divisions, and destructive conflict.

Cooperative learning proponents disagree vehemently concerning the role of intrinsic versus extrinsic reward systems as achievement motivators. The Johnsons and others believe that the learning task itself should be sufficient to motivate students toward increased achievement. Slavin is in the extrinsic reward camp, which insists that students will increase their achievement only if their efforts are reinforced by tangible rewards. Researchers also disagree regarding the effects of limiting resources (supplies, information, etc.) provided to individual team members.

Notwithstanding the controversy over rewards and resources, the Johnsons conclude that cooperative learning can flourish only when students adopt a "sink-or-swim-together" attitude and feel personally responsible for pursuing group goals.

Cohen, Elizabeth G. **"Continuing to Cooperate: Prerequisites for Persistence."** *Phi Delta Kappan* 76:2 (October 1990). 134-136, 138. EJ 414 876.

Stanford University's Program for Complex Instruction, which has introduced cooperative learning to hundreds of California elementary school classrooms, exemplifies its director's commitment to making group work a challenging and rewarding undertaking. In this program, small groups of children work with varied resource materials on different problem-solving tasks.

The program employs Edward De Avila's bilingual "Finding Out/Descubrimiento" program to help children use each other as resources, play specific group roles, and accept responsibility for completing individual worksheets. Cohen finds the program's complex instruction a promising alternative for children entering school without the usual "middle-class repertoire of knowledge and behaviors."

Despite cooperative learning's proven track record, Cohen has mixed feelings about its growing popularity, since it is neither a "quick cure" nor an easily implemented strategy. She feels that group learning's survival will require newly developed curriculum materials, successful treatment of status problems within groups, and the presence of "collegial relationships and strong organizational support."

Cohen finds paper-and-pencil tasks, and traditional materials that stress right answers, precise directions, and conventional academic skills, unsuitable for group learning, since the most academically able students will do most of the work. Conceptual learning in mixed-ability and mixed-language proficiency groups can occur only when tasks genuinely challenge students to use multiple abilities, such as spatial and visual problem solving and reasoning.

Assigned tasks can *incorporate* reading, writing, and computing skills, but these skills should not be *prerequisites* for group participation. To help students master routine functions, such as calculation skills, Cohen recommends using curricular materials based on Slavin's Student Team Learning models.

Like Slavin, Cohen emphasizes the importance of individual products that permit low achievers to practice skills "vital for improving their achievement." Cohen's manual *Designing Groupwork* (Teachers College Press, 1986) suggests ways to develop such materials and to prepare students.

Teachers face substantial role changes and classroom management problems when delegating authority to multiple groups of students and dealing with unequal participation. Teachers must also learn to cooperate with each other for planning, problem solving, curriculum development, and feedback on their performance.

Principals can support their teachers' efforts by arranging for released time, and by recognizing that cooperative learning strategies cannot be "plugged into old organizational arrangements." A principal's commitment to group learning will have far-reaching implications for curriculum, staff development, and the organization of teaching.

Solomon, Daniel, et al. **"Cooperative Learning as Part of a Comprehensive Classroom Program Designed to Promote Prosocial Development."** In *Cooperative Learning: Theory and Research*, edited by Shlomo Sharan. New York: Praeger, 1990: 231-260.

Cooperative learning is a major strand of the ongoing Child Development Plan (CDP) that Solomon and his associates have provided to children in three elementary schools in a suburban San Francisco district since 1982. The program aims to enhance children's "prosocial" development through a comprehensive, long-term program supported by school policies and parental involvement.

Assisted by CDP staff, parents, and school administrators, teachers have tried to create a caring milieu by encouraging helping activities, promoting social values and understanding through literature and other media, instituting a system of developmental discipline stressing intrinsic motivation, and employing cooperative learning techniques consistent with explicit social, academic, and developmental goals.

The CDP project has concentrated on a longitudinal cohort of children entering kindergarten in 1982 and has

provided intensive assistance to teachers in program schools. Evaluation research has closely followed children's progress from kindergarten through fourth grade, both in program schools and in a comparison group of three elementary schools in the same district that did not receive the program.

A broad range of student outcomes was assessed each year through interviews, questionnaires, and observations. Results showed that the program positively influenced students' interpersonal behavior in the classroom, social problem solving, and concern for democratic values, and that academic progress was unimpeded. However, the classroom gains of the program students did not extend to small-group playground interactions—a major disappointment for researchers.

According to the authors, the CDP program would have been even more successful if teachers had been trained at a "whole-school" level and had been given more time to learn the program before implementing it. The research team is planning to extend CDP to fifth and sixth graders in the same district, and to another district serving predominantly working- and middle-class students. □

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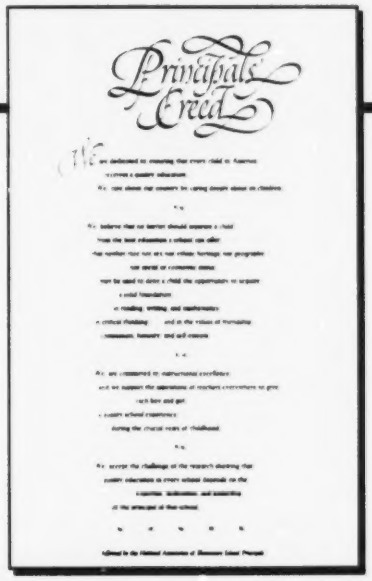

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